UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
DESA/HWSB/HWSS
2890, Woodbridge Avenue, Edison, NJ 08837

EXECUTIVE NARRATIVE

Case No. : 45532
Site: Mackenzie Chemical Works
Number of Samples: 12 (Water)
Analysis: TVOA (MA 2518.0)

SDG No.: B73R4
Laboratory: KAP
Sampling dates: 08/17/2015-08/19/2015
Validation SOP: HW-34A (Rev 0)

QAPP:
Contractor: EPA Region 2
Reference: DCN: Mackenzie_QAPPaDDENDUM_08_2015

SUMMARY OF DEFINITIONS:
Critical: Results have an unacceptable level of uncertainty and should not be used for making decisions. Data have been qualified "R" rejected.
Major: A level of uncertainty exists that may not meet the data quality objectives for the project. A bias is likely to be present in the results. Data has been qualified "J" estimated. "J+" and "J-" represent likely direction of the bias.
Minor: The level of uncertainty is acceptable. No significant bias in the data was observed.

Critical Findings:
None.

Major Findings:
None.

Minor Findings:
None.

COMMENTS:	The site specific QAPP does not specify the project action levels for the samples from this site.

Reviewer Name(s): Archana Mirle

Approver's Signature: **Date: 10/01/15**

Name: Russell Arnone

Affiliation: USEPA/R2/HWSB/HWSS

613774

Data Qualifier Definitions (National Functional Guidelines)			
Qualifier Symbol	**Explanation**		
	INORGANICS	**ORGANICS**	**CHLORINATED DIOXIN/FURAN**
U	The analyte was analyzed for, but was not detected above the level of the reported quantitation limit.	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method	The analyte was analyzed for but not detected. The value preceding the "U" may represent the adjusted Contract Required Quantitation Limit (see DLM02.X, Exhibit D, Section 1.2 and Table 2), or the sample specific estimated detection limit (EDL, see Method 8290A, Section 11.9.5).
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL.	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to an issue with the quality of the data generated because certain QC criteria were not met, or the concentration of the analyte was below the adjusted CRQL).
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.	
J–	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.	
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.	The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.	The analyte was not detected (see definition of "U" flag, above). The reported value should be considered approximate.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.	The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.	The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
N		The analysis indicates the presence of an analyte for which there is presumptive evidence to make a “tentative identification”.	
NJ		The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	
C		This qualifier applies to pesticide and Aroclor results when the identification has been confirmed by Gas Chromatograph/Mass Spectrometer (GC/MS).	
X		This qualifier applies to pesticide and Aroclor results when GC/MS analysis was attempted but was unsuccessful.	

DATA ASSESSMENT

ANALYSIS: TVOA

The current SOP HW-34A (Revision 0) July 2015, USEPA Region II Data Validation SOP for Statement of Work SOM02.2 for evaluating Trace Volatile organic data has been applied. Data has been reviewed according to TDF specifications, the National Functional Guidelines Report and the CCS Semi- Automated Screening Results Report. Tentatively Identified Compounds (TICs) for VOA organic fraction is not validated.

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as unusable, "R". Use professional judgment to qualify detects and non-detects for aqueous sample whose temperature is above 6 degree or below 2 degree C Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

2. DEUTERATED MONITORING COMPOUNDS (DMC's)

All samples are spiked with DMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured DMC recovery concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

3. MATRIX SPIKE/ MATRIX SPIKE RECOVERY:

MS/MSD data is generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD data may be used in conjunction with other QC criteria for additional qualification of data.

Not applicable.

4. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. Depending on

the amount of contamination present in the QA blanks, the analytes are qualified as per Table 5 of SOP HW-34A (Rev 0).

A) Method blank contamination:

No problems were found for this criterion.

B) Field or rinse blank contamination:

No problems were found for this criterion.

C) Trip blank contamination:

No problems were found for this criterion.

D) Storage Blank associated with VOA samples only:

No problems were found for this criterion.

E) Tentatively Identified Compounds:

Tentatively Identified Compounds (TICs) for TVOA organic fraction are not validated.

5. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is (BFB) Bromofluorobenzene. If the mass calibration is in error, all associated data will be classified as unusable "R". Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

6. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Response Factor GC/MS:

The response factor measures the instrument's response to specific chemical compounds. All analytes for initial and continuing calibration should meet the minimum RRF criteria as listed in Table 2 of SOP HW 34A (Rev 0). If RRF is less than minimum RRF as specified in Table 2 for all target analytes, use professional judgment and all detects in

the sample will be qualified as "J+" or "R". All non-detects for that compound will be rejected "R". Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration.

Percent RSD must be less than maximum %RSD in Table 2 of SOP HW 34A (Rev 0) for all target analytes. For the opening or closing CCV %D must be within the inclusive opening or closing maximum %D limits as listed in Table 2 of SOP HW 34A (Rev 0) for all Target compounds. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and Non-detects are flagged "UJ" for %D values outside criteria only. If %RSD exceeds QC criteria, detects may be qualified as "J" and use professional judgment to qualify non-detects. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

7. INTERNAL STANDARDS PERFORMANCE GC/MS:

Internal standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must be in the range as specified in SOP HW 34A (Rev 0) of the associated continuing calibration internal standard area. The retention time of the internal standards must be within the range as specified in SOP HW 34A (Rev 0). If the area count is greater than, all positive results quantitated using that IS are qualified as estimated "J-", and non-detects are not qualified. If the area count is less than the associated standard, all positive results for compounds quantitated with that IS are qualified as estimated "J+" and all non-detects are qualified "R".

If an internal standard retention time were not met as specified in SOP HW 34A (Rev 0), the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction. Qualifications were applied to the samples and analytes as shown below. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

8. FIELD DUPLICATES:

No problems were found for this criterion.

9. COMPOUND IDENTIFICATION:

Target compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the

results to be a positive hit, the sample peak must be within a window of 0.06 RRT units of the standard compound and have ion spectra which has a ratio of the primary and secondary m/z intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. Qualifications were applied to the samples and analytes as shown below.

No problems were found for this criterion.

10. CONTRACT PROBLEMS NON-COMPLIANCE:

None.

11. FIELD DOCUMENTATION:

No problems were identified.

12. OTHER PROBLEMS:

None.

13. DILUTIONS, RE-EXTRACTIONS & REANALYSIS:

Samples may be re-analyzed for dilution, re-extraction and for other QC reasons. In such cases, the best result values are used. See summary report and EDD for applicable samples and analytes.

Sample Summary Report

Case No:	45532	Contract:	EPW14031	SDG No:	B73R4	Lab Code:	KAP
Sample Number:	B73R3	Method:	Trace Volatiles by SIM	Matrix:	Water	MA Number:	2518.0
Sample Location:	EPA-1	pH:	2	Sample Date:	08/17/2015	Sample Time:	16:05:00
% Moisture :				% Solids :	100.00		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichloropropane	Target	3.5		ug/L	3.5	D	10.0	Yes	S3VEM

Case No:	45532	Contract:	EPW14031	SDG No:	B73R4	Lab Code:	KAP
Sample Number:	B73R4	Method:	Trace Volatiles by SIM	Matrix:	Water	MA Number:	2518.0
Sample Location:	EPA-2	pH:	2	Sample Date:	08/17/2015	Sample Time:	16:25:00
% Moisture :				% Solids :	100.00		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichloropropane	Target	2.0		ug/L	2.0	D	4.0	Yes	S3VEM

Case No:	45532	Contract:	EPW14031	SDG No:	B73R4	Lab Code:	KAP
Sample Number:	BCKA1	Method:	Trace Volatiles by SIM	Matrix:	Water	MA Number:	2518.0
Sample Location:	EPA-3	pH:	2	Sample Date:	08/17/2015	Sample Time:	15:19:00
% Moisture :				% Solids :	100.00		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichloropropane	Target	4.4		ug/L	4.4	D	10.0	Yes	S3VEM

Case No:	45532	Contract:	EPW14031	SDG No:	B73R4	Lab Code:	KAP
Sample Number:	BCKA2	Method:	Trace Volatiles by SIM	Matrix:	Water	MA Number:	2518.0
Sample Location:	EPA-4	pH:	2	Sample Date:	08/17/2015	Sample Time:	16:10:00
% Moisture :				% Solids :	100.00		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichloropropane	Target	0.060		ug/L	0.060		1.0	Yes	S3VEM

Case No:	45532	Contract:	EPW14031	SDG No:	B73R4	Lab Code:	KAP
Sample Number:	BCKA3	Method:	Trace Volatiles by SIM	Matrix:	Water	MA Number:	2518.0
Sample Location:	EPA-5	pH:	2	Sample Date:	08/17/2015	Sample Time:	12:45:00
% Moisture :				% Solids :	100.00		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichloropropane	Target	8.0		ug/L	8.0	D	10.0	Yes	S3VEM

Case No:	45532	Contract:	EPW14031	SDG No:	B73R4	Lab Code:	KAP
Sample Number:	BCKA4	Method:	Trace Volatiles by SIM	Matrix:	Water	MA Number:	2518.0
Sample Location:	EPA-7	pH:	2	Sample Date:	08/17/2015	Sample Time:	16:06:00
% Moisture :				% Solids :	100.00		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichloropropane	Target	3.4		ug/L	3.4	D	5.0	Yes	S3VEM

Case No:	45532	Contract:	EPW14031	SDG No:	B73R4	Lab Code:	KAP		
Sample Number:	BCKA5	Method:	Trace Volatiles by SIM	Matrix:	Water	MA Number:	2518.0		
Sample Location:	EPA-6	pH:	2	Sample Date:	08/17/2015	Sample Time:	14:15:00		
% Moisture :				% Solids :	100.00				

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichloropropane	Target	3.1		ug/L	3.1	D	5.0	Yes	S3VEM

Case No:	45532	Contract:	EPW14031	SDG No:	B73R4	Lab Code:	KAP
Sample Number:	BCKA6	Method:	Trace Volatiles by SIM	Matrix:	Water	MA Number:	2518.0
Sample Location:	EPA-8	pH:	2	Sample Date:	08/17/2015	Sample Time:	14:20:00
% Moisture :				% Solids :	100.00		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichloropropane	Target	3.1		ug/L	3.1	D	5.0	Yes	S3VEM

Case No:	45532	Contract:	EPW14031	SDG No:	B73R4	Lab Code:	KAP
Sample Number:	BCKA7	Method:	Trace Volatiles by SIM	Matrix:	Water	MA Number:	2518.0
Sample Location:	EPA-80	pH:	2	Sample Date:	08/17/2015	Sample Time:	14:25:00
% Moisture :				% Solids :	100.00		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichloropropane	Target	2.8		ug/L	2.8	D	4.0	Yes	S3VEM

Case No:	45532	Contract:	EPW14031	SDG No:	B73R4	Lab Code:	KAP
Sample Number:	BCKA8	Method:	Trace Volatiles by SIM	Matrix:	Water	MA Number:	2518.0
Sample Location:	EPA-9	pH:	2	Sample Date:	08/17/2015	Sample Time:	16:30:00
% Moisture :				% Solids :	100.00		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichloropropane	Target	0.030	U	ug/L	0.030	U	1.0	Yes	S3VEM

Case No:	45532	Contract:	EPW14031	SDG No:	B73R4	Lab Code:	KAP
Sample Number:	BCKA9	Method:	Trace Volatiles by SIM	Matrix:	Water	MA Number:	2518.0
Sample Location:	MCMW-1	pH:	2	Sample Date:	08/19/2015	Sample Time:	14:48:00
% Moisture :				% Solids :	100.00		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichloropropane	Target	0.030	U	ug/L	0.030	U	1.0	Yes	S3VEM

Case No:	45532	Contract:	EPW14031	SDG No:	B73R4	Lab Code:	KAP
Sample Number:	BCKB0	Method:	Trace Volatiles by SIM	Matrix:	Water	MA Number:	2518.0
Sample Location:	OS-5Y	pH:	2	Sample Date:	08/19/2015	Sample Time:	11:02:00
% Moisture :				% Solids :	100.00		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichloropropane	Target	0.030	U	ug/L	0.030	U	1.0	Yes	S3VEM

Case No: 45532	Contract: EPW14031	SDG No: B73R4	Lab Code: KAP
Sample Number: VBLK81	Method: Trace Volatiles by SIM	Matrix: Water	MA Number: 2518.0
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids : 100.00	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichloropropane	Target	0.030	U	ug/L	0.030	U	1.0	Yes	S3VEM

Case No:	45532	Contract:	EPW14031	SDG No:	B73R4	Lab Code:	KAP
Sample Number:	VBLK83	Method:	Trace Volatiles by SIM	Matrix:	Water	MA Number:	2518.0
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :	100.00		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichloropropane	Target	0.030	U	ug/L	0.030	U	1.0	Yes	S3VEM

Case No:	45532	Contract:	EPW14031	SDG No:	B73R4	Lab Code:	KAP
Sample Number:	VBLK85	Method:	Trace Volatiles by SIM	Matrix:	Water	MA Number:	2518.0
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :	100.00		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichloropropane	Target	0.030	U	ug/L	0.030	U	1.0	Yes	S3VEM

Case No:	45532	Contract:	EPW14031	SDG No:	B73R4	Lab Code:	KAP
Sample Number:	VHBLK02	Method:	Trace Volatiles by SIM	Matrix:	Water	MA Number:	2518.0
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :	100.00		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichloropropane	Target	0.030	U	ug/L	0.030	U	1.0	Yes	S3VEM

Case No:	45532	Contract:	EPW14031	SDG No:	B73R4	Lab Code:	KAP
Sample Number:	VLCS81	Method:	Trace Volatiles by SIM	Matrix:	Water	MA Number:	2518.0
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :	100.00		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichloropropane	Target	0.035		ug/L	0.035		1.0	Yes	S3VEM

Case No:	45532	Contract:	EPW14031	SDG No:	B73R4	Lab Code:	KAP
Sample Number:	VLCS83	Method:	Trace Volatiles by SIM	Matrix:	Water	MA Number:	2518.0
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :	100.00		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichloropropane	Target	0.044		ug/L	0.044		1.0	Yes	S3VEM

Case No:	45532	Contract:	EPW14031	SDG No:	B73R4	Lab Code:	KAP
Sample Number:	VLCS85	Method:	Trace Volatiles by SIM	Matrix:	Water	MA Number:	2518.0
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :	100.00		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichloropropane	Target	0.030	U	ug/L	0.030	U	1.0	Yes	S3VEM